

October 2006

EVIDENCE-BASED PUBLIC POLICY OPTIONS TO REDUCE FUTURE PRISON CONSTRUCTION, CRIMINAL JUSTICE COSTS, AND CRIME RATES[‡]

Current long-term forecasts indicate that Washington will need two new prisons by 2020 and possibly another prison by 2030. Since a typical new prison costs about \$250 million to build and \$45 million a year to operate, the Washington State Legislature expressed an interest in identifying alternative “evidence-based” options that can: (a) reduce the future need for prison beds, (b) save money for state and local taxpayers, and (c) contribute to lower crime rates.

The 2005 Legislature directed the Washington State Institute for Public Policy (Institute) to report, by October 2006, whether evidence-based and cost-beneficial policy options exist.

If economically sound options are available, then the Legislature directed the Institute to project the total impact of alternative implementation scenarios.¹

This report describes our results to date. We begin by providing background information on historic and projected incarceration rates in Washington, as well as a history of crime rates and fiscal costs of the criminal justice system. We then describe the process we use to determine if evidence-based and economically sound options exist, and we present our findings. We examine adult corrections, juvenile corrections, and prevention programs. This is followed by our projections of the impact of alternative implementation scenarios. We conclude by discussing some implications of the findings and next steps. For technical readers, appendices begin on page 19 and describe our research methods and results in greater detail.

[‡] Suggested citation: Steve Aos, Marna Miller, and Elizabeth Drake. (2006). *Evidence-Based Public Policy Options to Reduce Future Prison Construction, Criminal Justice Costs, and Crime Rates*. Olympia: Washington State Institute for Public Policy.

Summary

Under current long-term forecasts, Washington State faces the need to construct several new prisons in the next two decades. Since new prisons are costly, the 2005 Washington Legislature directed the Washington State Institute for Public Policy to project whether there are “evidence-based” options that can:

- ✓ **reduce the future need for prison beds,**
- ✓ **save money for state and local taxpayers,**
- ✓ **contribute to lower crime rates.**

We conducted a systematic review of all research evidence we could locate to identify what works, if anything, to reduce crime. We found and analyzed 571 rigorous comparison-group evaluations of adult corrections, juvenile corrections, and prevention programs, most of which were conducted in the United States. We then estimated the benefits and costs of many of these evidence-based options. Finally, we projected the degree to which alternative “portfolios” of these programs could affect future prison construction needs, criminal justice costs, and crime rates in Washington.

We find that some evidence-based programs can reduce crime, but others cannot. Per dollar of spending, several of the successful programs produce favorable returns on investment. Public policies incorporating these options can yield positive outcomes for Washington.

We project the long-run effects of three example portfolios of evidence-based options: a “current level” option as well as “moderate” and “aggressive” implementation portfolios.

We find that if Washington successfully implements a moderate-to-aggressive portfolio of evidence-based options, a significant level of future prison construction can be avoided, taxpayers can save about two billion dollars, and crime rates can be reduced.

Legislative Direction for the Study

The legislative language directing the Institute's study is shown verbatim in the accompanying sidebar. In brief, the legislation requires the Institute to study the net short-run and long-run fiscal savings to state and local governments if evidence-based intervention, prevention, and sentencing alternatives are implemented in Washington State.

The Institute is directed to examine three broad types of public policy options the legislature could consider.

1. **Intervention programs.** For people already in Washington's juvenile and adult correctional systems, the language directs the Institute to estimate whether investments in evidence-based programs could cost-effectively lower recidivism rates and, as a result, the need for additional prison beds.
2. **Prevention programs.** The legislative language also instructs the Institute to estimate whether investments in evidence-based and cost-beneficial prevention programs could help reduce the need for future prison beds. Since most prevention programs are for young children, effective evidence-based prevention resources can be expected to affect adult prison use in the longer run. Prevention programs hold the potential, of course, to offer other near-term and long-term advantages, such as improved educational outcomes. In this report, we include some representative prevention programs but, in order to complete this report on budget, we were not able to update our earlier study of prevention programs.² Subsequent versions can include additional prevention programs.
3. **Sentencing options.** The legislation directs the Institute to examine possible changes that could be made to Washington's sentencing laws, including sentencing alternatives and the use of risk factors in sentencing. These options are to be analyzed in conjunction with the Washington State Sentencing Guidelines Commission.

After analyzing the economics of each of these policy options, the task for the study is to project the total fiscal and prison bed impacts of alternative implementation scenarios. The goal of these policy choices is to allow the legislature to consider different combinations of options that have the ability to keep crime rates under control while also lowering the long-run fiscal costs of Washington's state and local criminal justice system. In financial terms, this means identifying "portfolios" of policy choices that

Study Language From the 2005 Legislature

The capital budget bill from the 2005 session (ESSB 6094, Section 708, Chapter 488, Laws of 2005) contained this language:

"The appropriation in this section is subject to the following conditions and limitations: The appropriation is provided solely for the Washington state institute for public policy to study options to stabilize future prison populations. The legislature intends to examine options that could stabilize the adult inmate population growth at the projected 2007 level in order to avoid construction of major prison facilities after construction of the Coyote Ridge correctional center. To do this, the legislature finds that sentencing options need to be examined in conjunction with prevention and intervention programs. The legislature finds that existing and current research underway by the Washington state institute for public policy can be synthesized to develop these options, in conjunction with sentencing options that will be developed by the sentencing guidelines commission. The Washington state institute for public policy shall build on the study required by chapter... (Engrossed Substitute Senate Bill No. 5763 (mental disorders treatment)), Laws of 2005, and study the net short-run and long-run fiscal savings to state and local governments of implementing evidence-based treatment human service and corrections programs and policies, including prevention and intervention programs, sentencing alternatives, and the use of risk factors in sentencing. The institute shall use the results from its 2004 report on cost-beneficial prevention and early intervention programs and its work on effective adult corrections programs to project total fiscal impacts under alternative implementation scenarios. The institute shall provide an interim report to the appropriate committees of the legislature by January 1, 2006, and a final report by October 1, 2006."

The Institute received an appropriation of \$50,000 to conduct the study. Since this project overlaps with other projects, we were able to use supplemental resources as well.

replace lower rate-of-return investments with strategies that produce higher rates of return on the taxpayer's dollar.

Background: Trends in Historic and Forecasted Prison Populations in Washington

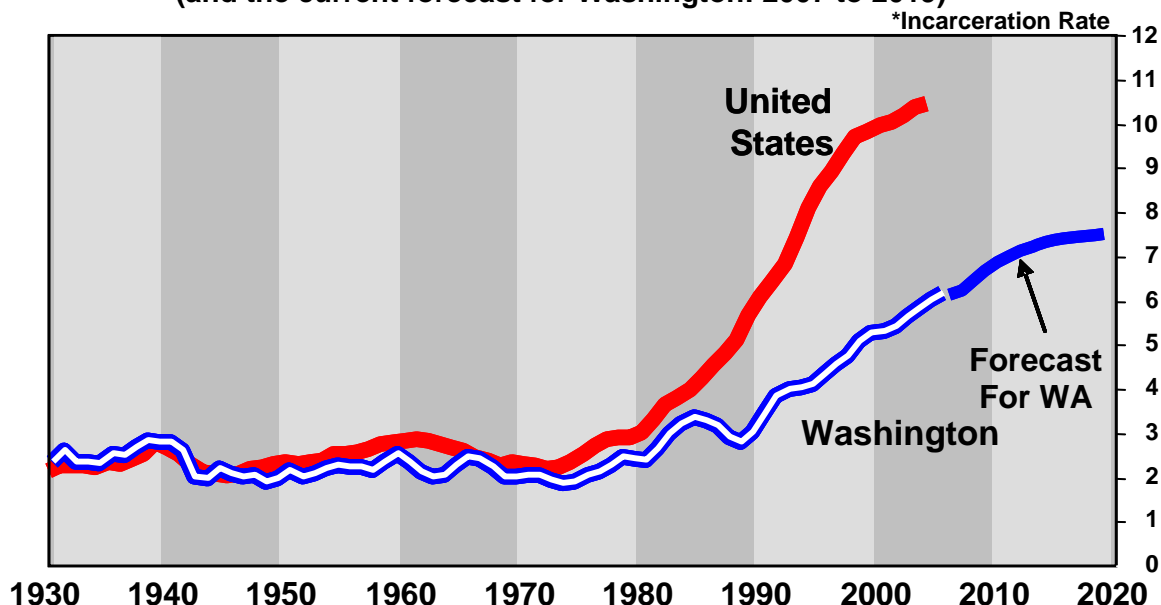
To provide context for this study, it is helpful to review a few basic facts on prison populations in Washington. Criminologists measure the size of prison populations over time with a statistic called an “incarceration rate.” This straightforward indicator simply divides the total number of people in prison at any point in time by the total number of adults in a relevant age group. Exhibit 1 displays a long-term history—from 1930 to the present—of prison incarceration rates for Washington along with comparable figures for the United States.³ The Exhibit also shows the current forecasted incarceration rate for Washington.

✓ **Prison incarceration rates have roughly tripled in Washington since the mid-1970s.** The use of prison in Washington was quite stable from 1930 to 1980. On any given day during this 50-year period, roughly two persons, between the ages of 18 and 49, were incarcerated in a state prison out of every 1,000 people in Washington.⁴ Washington’s incarceration rate then began to grow in the late 1970s and 1980s, and accelerated further during the 1990s. Today, Washington’s prison incarceration rate stands at about six adults incarcerated per 1,000.⁵

✓ **Washington’s growth rate in prison populations has been considerably less than the national rate.** Exhibit 1 also plots the national prison incarceration rate. For several decades—from 1930 until the mid-1970s—Washington’s incarceration rate was quite similar to the average rate across the United States. Washington’s rate began to diverge slightly from the national trend in the late 1970s, but then went on a distinctively different path after Washington enacted sentencing reform legislation in the early 1980s. Today Washington’s incarceration rate is about 56 percent of the national rate.

✓ **Washington’s incarceration rate is expected to increase another 23 percent by 2019.** Exhibit 1 also contains one other piece of information particularly relevant for this study. The Exhibit includes the latest official forecast of Washington’s prison incarceration rate to the year 2019. In the mid-1990s, the legislature established the Washington State Caseload Forecast Council (CFC) to project key caseloads that affect the state budget.⁶ The latest CFC prison forecast (June 2006) indicates continued increases in adult incarceration rates. The CFC forecast is based on current sentencing laws, including those passed by the 2006 Legislature, as well as estimates of other criminal justice and demographic trends in Washington. The CFC forecast does not attempt to anticipate any changes future legislatures might make to existing laws or the passage of new laws.

Exhibit 1
Adult Prison Incarceration Rates
In Washington and the United States: 1930 to 2006
(and the current forecast for Washington: 2007 to 2019)



*The incarceration rate is defined as the number of inmates in state prisons per 1,000 18- to 49-year-olds in Washington or the United States. The forecast is from the Washington Caseload Forecast Council (CFC).

Background: Supply and Demand— The Forecasted Need for Prison Beds in Washington, 2008 to 2030

The current Caseload Forecast Council projection implies the need for an increase in new prison beds. Exhibit 2 displays the key budget-driving statistics.

Existing Supply. The shaded areas on the chart depict the current supply of prison beds in Washington, about 18,000 beds. This figure includes already-funded expansions to the Coyote Ridge facility, scheduled to be completed in 2008. The forecast of bed supply also shows that over the forecast period an average of about 1,800 additional beds are anticipated to be rented from local county jails; these beds are used to house offenders who have violated the terms of their community supervision and are returned to custody.⁷ Currently, Washington also rents some prison beds out of state (about 960 beds as of mid-2006); these out-of-state beds are not shown in Exhibit 2.⁸

Forecasted Demand. The anticipated demand for prison beds is also shown in Exhibit 2. The forecast to the year 2019 is the aforementioned June 2006 forecast of the Caseload Forecast Council. The extension to the year 2030 is made by the Institute for use in this study of long-term options. The state Office of Financial Management currently forecasts state population to the year 2030, and we use this information to make projections.⁹ The growth in

prison bed demand stems from two factors: the forecasted growth in incarceration rates as the cumulative effects of current laws are implemented, and the expected increase in Washington's population.

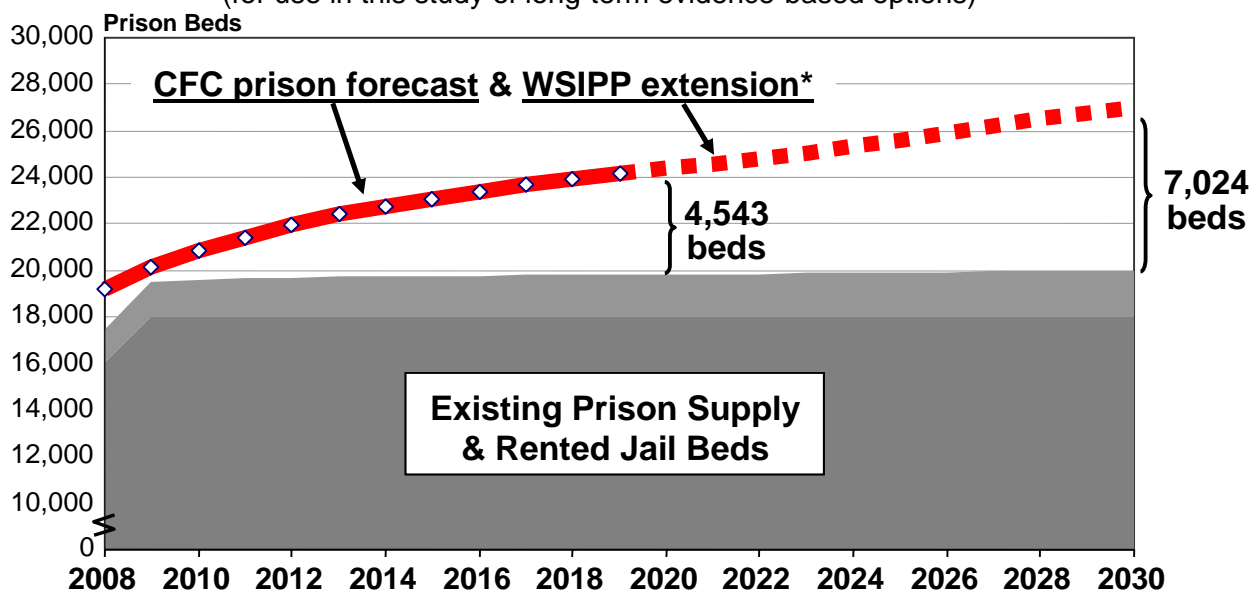
The Gap Between Supply and Demand. Absent any new policy changes from the legislature, the CFC's forecast implies the need for about 4,500 new prison beds by about 2020. Projecting this to 2030, the supply-demand gap widens further to about a 7,000 bed shortfall.

Recently constructed prisons in Washington have been designed to house about 2,000 offenders. Thus, by 2020 there is an anticipated shortage of a little more than two new prisons, and this grows to about three and a half new prisons by 2030.

The capital cost of a typical new 2000-bed prison is about \$250 million, and it costs about \$45 million per year to operate a typical new facility. This means it costs taxpayers about \$9,000 per year per bed to amortize capital costs and \$22,600 per year per bed to staff and operate a new prison. Combined, the total fiscal cost per typical new bed is thus about \$31,600 per prisoner per year.¹⁰

The purpose of this study is to estimate whether some of these costs (as well as other state and local government costs) can be avoided if a portfolio of evidence-based policy options is implemented successfully.

Exhibit 2
Adult Prison Supply and Demand in Washington: 2008 to 2030
(for use in this study of long-term evidence-based options)



* The forecast to the year 2019 is by the Washington Caseload Forecast Council (CFC). The extension to the year 2030 is by the Washington State Institute for Public Policy (WSIPP).

Background: Crime in Washington and Taxpayer Costs of the Criminal Justice System

Two other contextual factors relevant to this study include crime rates and the total cost of the taxpayer-financed criminal justice system.

Exhibit 3 provides two “big picture” indicators of these long-term trends. First, the chart shows that felony crime rates (that is, crimes as reported to police) were 26 percent lower in 2005 than they were in 1980. This means that the odds of being a victim of a serious violent or property crime have been reduced significantly over the last 25 years.¹¹

Exhibit 3 also shows that the fiscal cost of the state and local criminal justice system in Washington has increased substantially over the same period. The inflation-adjusted cost of the taxpayer-financed criminal justice system increased 92 percent since 1980. Today, the average household in Washington spends about \$1,130 in taxes per year to fund the criminal justice system. In 1980 the typical household spent \$590 (in 2006 dollars).¹²

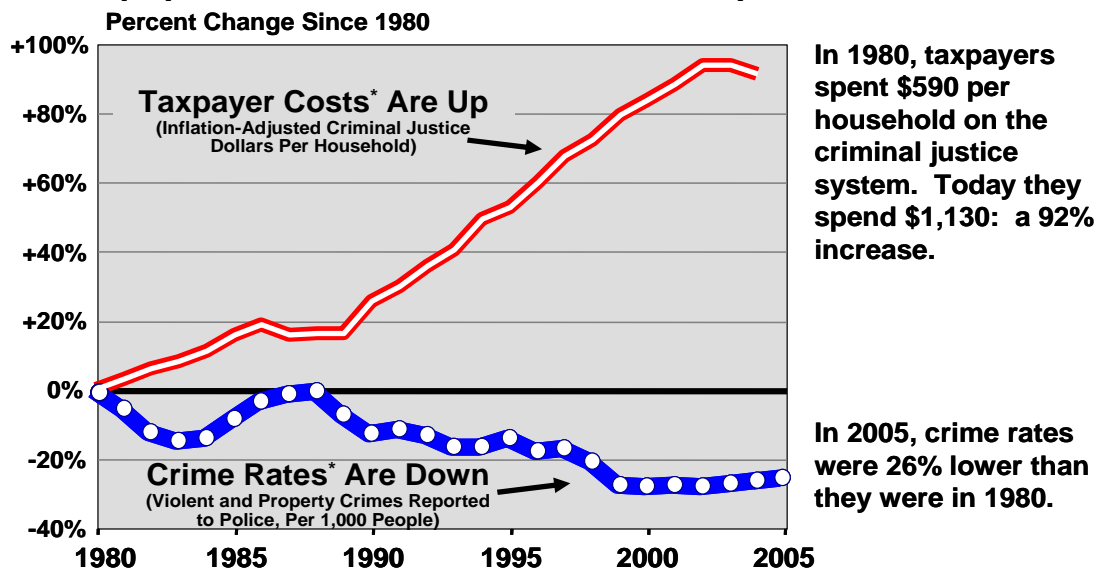
Why have expenditures increased? Three factors stand out. First, local taxpayers funded a slight increase in the number of commissioned police officers; since 1980, the number of commissioned police officers per capita increased about five percent. Second, and much more significantly, Washington increased its prison incarceration rate as indicated in Exhibit 1; since 1980, the prison

incarceration rate increased 165 percent. Finally, at the local level of government, county jail incarceration rates increased about 185 percent over these same years.

There is empirical evidence that part of the reason crime rates have declined is directly related to the increased spending Washington has devoted to the criminal justice system. On average, increasing police per capita and increasing incarceration rates work to decrease the crime rate, particularly for certain types of crime. For example, our analysis of Washington’s experience, as well as other national analyses, provides an indication that increasing the prison incarceration rate by 10 percent reduces crime rates by 2 to 4 percent (see sidebar on page 10). Diminishing returns, however, begin to erode the crime reduction effect as incarceration rates are increased, and the effects vary significantly by the type of offenders incarcerated (violent, property, or drug offenders).¹³

The question the Legislature directed the Institute to study for this project is this: Looking into the future, are there portfolios of evidence-based resources that can help the state keep crime rates down, but do so at a reduced cost to taxpayers? That is, what policy choices are available to affect the path of the two trends shown in Exhibit 3 over the next two decades?

Exhibit 3
The Change in Washington’s Crime Rate and Taxpayer Costs of the Criminal Justice System: 1980 to 2005



* Taxpayer costs include all costs related to the criminal justice system: police, courts, prosecutors, public defenders, and local and state juvenile and adult corrections. Crime rates measure serious felony crimes reported to police.

Research Questions and Methods for This Study

The research approach we employ for this assignment is designed to answer three distinct and sequential questions. First, we review the empirical evidence to identify whether there are any “evidence-based” public criminal justice and prevention policies and programs that have a proven ability to affect crime rates. Second, we determine whether each option has favorable economics—that is, do long-term benefits outweigh costs for each option. In the third step, we project how statewide implementation of alternative portfolios of evidence-based options would influence the long-run need for prison beds, state and local fiscal costs, and crime rates.

In this section, we describe briefly these three research steps; technical readers can find a detailed description of our methods in the appendices, beginning on page 19.

Research Question 1: What works to reduce crime? In recent years, public policy decision-makers throughout the United States have expressed interest in adopting “evidence-based” criminal justice programs. Similar to the pursuit of evidence-based medicine, the goal is to improve the criminal justice system by implementing programs and policies that have been shown to work. Just as important, research findings can be used to eliminate programs that have failed to produce desired outcomes. Whether for medicine, criminal justice, or other areas, the watchwords of the evidence-based approach to public policy include: outcome-based performance, rigorous evaluation, and a positive return on taxpayer investment.

The goal of the first research step is to answer a simple question: What works, if anything, to lower measured crime outcomes? Specifically, does rigorous evaluation evidence indicate that particular adult corrections programs, juvenile corrections programs, or prevention programs lower crime rates? Additionally, in order to estimate benefits and costs, we seek to estimate the magnitude of the crime reduction effect of each possible option.

To answer these fundamental questions, we conducted a comprehensive statistical review of all program evaluations conducted over the last 40 years in the United States and other English-writing countries. As we describe, we located 571 evaluations of individual programs with sufficiently rigorous research to be included in our analysis. These evaluations were of adult corrections programs, juvenile offender programs, and preventions programs.

It is important to note that only a few of these 560 studies were evaluations of policies or programs in Washington State; rather, almost all of the evaluations in our review were of programs conducted in other locations. A primary purpose of our study is to take advantage of all these rigorous evaluations and, thereby, learn whether there are options that can allow policymakers in Washington to improve this state’s criminal justice system.

The research approach we employ in this first step is called a “systematic” review of the evidence. In a systematic review, the results of *all* rigorous evaluation studies are analyzed to determine if, on average, it can be stated scientifically that a program achieves an outcome. A systematic review can be contrasted with a so-called “narrative” review of the literature where a writer selectively cites studies to tell a story about a topic, such as crime prevention. Both types of reviews have their place, but systematic reviews are generally regarded as more rigorous and, because they assess all available studies and employ statistical hypotheses tests, they have less potential for drawing biased or inaccurate conclusions. Systematic reviews are being used with increased frequency in medicine, education, criminal justice, and many other policy areas.¹⁴

In our review of the evidence, we only include “rigorous” evaluation studies. The key criterion for a study to be included is that the evaluation must have a non-treatment or treatment-as-usual comparison group that is well matched to the program group. The accompanying sidebar “What Does ‘Evidence-Based’ Mean?” briefly describes the factors we consider in determining the applicability of a particular study for our systematic review.

Researchers have developed a set of statistical tools to facilitate systematic reviews of the evidence. The set of procedures is called “meta-analysis,” and we employ that methodology in the first step of this study.¹⁵ In the Technical Appendix to this report (beginning on page 19) we list the specific coding rules and statistical formulas we use to conduct the analysis—technical readers can find a full description of our methods and results.

Research Question 2: What are the benefits and costs of each option? While the purpose of Step 1 is to determine if anything works to lower crime outcomes, in Step 2 we ask a follow-up question: per dollar spent on a program, do the benefits of the program’s crime reduction exceed its costs? Since all programs cost money, this additional economic test seeks to determine whether the amount of crime

reduction justifies the program's expenditures. A program may have demonstrated an ability to reduce crime but, if the program costs too much, it may not be a good investment, especially when compared to alternatives.

To estimate the value of avoiding crime to people in Washington, the Institute developed an economic model to predict how much money is spent or saved when crime goes up or down. As described more fully in Appendix B, we estimate how police costs change when arrests go up or down; how court costs change when criminal filings and convictions change; and how jail and prison costs change when sentences to incarceration result from convictions. This model accounts for the probability that a crime will lead to an arrest, that an arrest will lead to a conviction, and that a conviction will lead to a sentence of confinement. In the modeling approach, each of these events is a function of actual historic practice in Washington and, for sentencing outcomes, reflects how offenders are currently sentenced under Washington's presumptive sentencing laws.

In addition to taxpayer costs, we also place a monetary value on the costs that crime victims incur when crime happens and, conversely, the victimization costs that can be avoided if a program reduces crime.¹⁶

The results of research questions 1 and 2 are combined to produce return-on-investment statistics for a wide array of evidence-based options available to the legislature.

Research Question 3: How would alternative portfolios of evidence-based and economically sound options affect future prison construction, criminal justice costs, and crime rates? Using the information from the first two research steps, combined with additional program and demographic information, we then project the total impact on Washington of alternative implementation scenarios. We use official statewide population forecasts, along with information on program eligibility and the percentage of eligible populations already being served by evidence-based programs.

We create three example portfolios. The first is a "current level" option that simply continues current evidence-based programs. We then project the effects of "moderate" and "aggressive" portfolios. For each portfolio, we forecast the annual fiscal costs of implementation as well as the expected effects on future prison construction, criminal justice system costs, and crime rates.

What Does "Evidence-Based" Mean?

At the direction of the Washington legislature, the Institute has conducted a number of systematic reviews of evaluation research to determine what public policies and programs work, and which ones do not work. These evidence-based reviews include the policy areas of adult and juvenile corrections, child welfare, mental health, substance abuse, prevention, K-12 education, and pre-K education.

The phrase "evidence-based" is sometimes used loosely in policy discussions. When the Institute is asked to conduct an evidence-based review, we follow a number of steps to ensure a rigorous definition. These criteria include:

1. We consider all available studies we can locate on a topic rather than selecting only a few studies; that is, we do not "cherry pick" the studies to include in our reviews. We then use formal statistical hypothesis testing procedures—meta-analysis—to determine whether the weight of the evidence indicates outcomes are, on average, achieved.
2. To be included in our reviews, we require that an evaluation's research design include control or comparison groups. Random assignment studies are preferred, but we allow quasi-experimental studies when the comparison group is well-matched to the treatment group. We then discount the findings of less-than-randomized comparison-group trials by a uniform percentage. We also require that the groups be "intent-to-treat" groups to help guard against selection bias.
3. We prefer evaluation studies that use "real world" samples from actual programs in the field. Evaluations of so-called "model" or "efficacy" programs are included in our reviews, but we discount the effects from these types of studies by a fixed percentage.
4. If the researcher of an evaluation is also the developer of the program, we discount the results from the study to account for potential conflict of interests, or the inability to replicate the efforts of exceptionally motivated program originators in real world field implementation.

Our additional criteria are listed in Appendix A.

Findings

The findings from this study center on three questions: what works to reduce crime; what are the economics of each option; and how would alternative portfolios of these options affect Washington's prison construction needs, state and local criminal justice costs, and crime rates?

What Works to Reduce Crime?

Exhibit 4 summarizes the findings from our current systematic review of the evaluation research literature. We update these findings as new information becomes available. Technical readers can find greater detail in Appendix A.

Overall, we reviewed and meta-analyzed the findings of 571 comparison-group evaluations of adult corrections, juvenile corrections, and prevention programs. Each of these evaluations included at least one relevant crime outcome that we were able to analyze. It is important to note that evaluations of prevention programs typically measure several other outcomes in addition to crime. For example, outcomes of prevention programs often include measures of education, substance abuse, and child abuse outcomes. In Exhibit 4, however, we only show the results of crime effects for studies that measured crime outcomes. In an earlier Institute report, we analyzed the degree to which a wide array of evidence-based prevention programs affects non-crime outcomes.¹⁷

To make this information useful for policy making in Washington, we categorized each of these 571 evaluations into relevant subject areas.¹⁸ For example, we found 57 evaluations of adult drug courts, and we analyzed these studies as a group for that type of program.

This categorization process illustrates a key characteristic of our study. For each category of programs we analyze, our results reflect the evidence-based effect we expect for the "average" program. For example, our results indicate that the average adult drug court reduces the recidivism rate of participants by 8.0 percent. Some drug courts, of course, achieve better results than this, some worse. On average, however, we find that the typical drug court can be expected to achieve this result.

At the bottom of Exhibit 4, we also list a number of programs for which the research evidence, in our judgment, is inconclusive at this time. Some of these programs have only one or two rigorous (often small sample) evaluations that do not allow us to draw general conclusions. Other programs have more

evaluations but the program category is too diverse or too general to allow meaningful conclusions to be made at this time. Subsequent research on these types of programs is warranted.

In column (1) of Exhibit 4, we show the expected percentage change in crime outcomes for the program categories we review. This figure indicates the average amount of change in crime outcomes—compared to no treatment or treatment as usual—that can be achieved by a typical program in each category of programs. A negative value indicates the magnitude of a statistically significant reduction in crime. A zero percent change means that, based on our review of the evidence, a typical program does not achieve a statistically significant change in crime outcomes. A few well-researched programs even have a positive sign indicating that crime is increased with the program, not decreased. In addition to reporting the effect of the programs on crime outcomes, column (1) also reports the number of studies on which the estimate is based.

As Exhibit 4 reveals, we find a number of programs demonstrate statistically significant reductions in crime outcomes. We also find other approaches do not achieve a statistically significant reduction in recidivism. Thus, the first lesson from our evidence-based review is that some programs work and some do not. A direct implication from these mixed findings is that public policies that reduce crime will be ones that focus resources on effective evidence-based programming while avoiding ineffective approaches.

As an example of the information provided in Exhibit 4, we analyzed the findings from 25 well-researched studies of cognitive-behavioral programs for adult offenders in prison and community settings. We find that, on average, these programs can be expected to reduce recidivism rates by 6.3 percent. To put this in perspective, our analysis indicates that, without a cognitive-behavioral program, about 63 percent of offenders will recidivate with a new felony or misdemeanor conviction after a 13-year follow-up. If these same offenders had participated in the evidence-based cognitive-behavioral treatment program, then we expect their recidivism probability would drop four points to 59 percent—a 6.3 percent reduction in recidivism rates.

As noted, most of the categories we report in Exhibit 4 are for general types of programming, such as drug treatment in prison or adult basic education in prison. We also categorize and report, however, the results of several very specific programs, such as a program for juvenile offenders named "Functional Family Therapy."

Exhibit 4

Reducing Crime With Evidence-Based Options: What Works, and Benefits & Costs

Washington State Institute for Public Policy Estimates as of October, 2006		Effect on Crime Outcomes		Benefits and Costs			
		Percent change in crime outcomes, & the number of evidence-based studies on which the estimate is based (in parentheses)		(Per Participant, Net Present Value, 2006 Dollars)			
				Benefits to Crime Victims (of the reduction in crime)	Benefits to Taxpayers (of the reduction in crime)	Costs (marginal program cost, compared to the cost of alternative)	Benefits (total) Minus Costs (per participant)
				(2)	(3)	(4)	(5)
				(1)			
Notes: "n/e" means not estimated at this time. Prevention program costs are partial program costs, pro-rated to match crime outcomes.							
Programs for People in the Adult Offender System							
Vocational education in prison	-9.0% (4)			\$8,114	\$6,806	\$1,182	\$13,738
Intensive supervision: treatment-oriented programs	-16.7% (11)			\$9,318	\$9,369	\$7,124	\$11,563
General education in prison (basic education or post-secondary)	-7.0% (17)			\$6,325	\$5,306	\$962	\$10,669
Cognitive-behavioral therapy in prison or community	-6.3% (25)			\$5,658	\$4,746	\$105	\$10,299
Drug treatment in community	-9.3% (6)			\$5,133	\$5,495	\$574	\$10,054
Correctional industries in prison	-5.9% (4)			\$5,360	\$4,496	\$417	\$9,439
Drug treatment in prison (therapeutic communities or outpatient)	-5.7% (20)			\$5,133	\$4,306	\$1,604	\$7,835
Adult drug courts	-8.0% (57)			\$4,395	\$4,705	\$4,333	\$4,767
Employment and job training in the community	-4.3% (16)			\$2,373	\$2,386	\$400	\$4,359
Electronic monitoring to offset jail time	0% (9)			\$0	\$0	-\$870	\$870
Sex offender treatment in prison with aftercare	-7.0% (6)			\$6,442	\$2,885	\$12,585	-\$3,258
Intensive supervision: surveillance-oriented programs	0% (23)			\$0	\$0	\$3,747	-\$3,747
Washington's Dangerously Mentally Ill Offender program	-20.0% (1)			\$18,020	\$15,116	n/e	n/e
Drug treatment in jail	-4.5% (9)			\$2,481	\$2,656	n/e	n/e
Adult boot camps	0% (22)			\$0	\$0	n/e	n/e
Domestic violence education/cognitive-behavioral treatment	0% (9)			\$0	\$0	n/e	n/e
Jail diversion for mentally ill offenders	0% (11)			\$0	\$0	n/e	n/e
Life Skills education programs for adults	0% (4)			\$0	\$0	n/e	n/e
Programs for Youth in the Juvenile Offender System							
Multidimensional Treatment Foster Care (v. regular group care)	-22.0% (3)			\$51,828	\$32,915	\$6,945	\$77,798
Adolescent Diversion Project (for lower risk offenders)	-19.9% (6)			\$24,328	\$18,208	\$1,913	\$40,623
Family Integrated Transitions	-13.0% (1)			\$30,708	\$19,502	\$9,665	\$40,545
Functional Family Therapy on probation	-15.9% (7)			\$19,529	\$14,617	\$2,325	\$31,821
Multisystemic Therapy	-10.5% (10)			\$12,855	\$9,622	\$4,264	\$18,213
Aggression Replacement Training	-7.3% (4)			\$8,897	\$6,659	\$897	\$14,660
Teen courts	-11.1% (5)			\$5,907	\$4,238	\$936	\$9,208
Juvenile boot camp to offset institution time	0% (14)			\$0	\$0	-\$8,077	\$8,077
Sex offender cognitive-behavioral treatment	-10.2% (5)			\$32,515	\$8,377	\$33,064	\$7,829
Restorative justice for low-risk offenders	-8.7% (21)			\$4,628	\$3,320	\$880	\$7,067
Interagency coordination programs	-2.5% (15)			\$3,084	\$2,308	\$205	\$5,186
Juvenile drug courts	-3.5% (15)			\$4,232	\$3,167	\$2,777	\$4,622
Regular surveillance-oriented parole (v. no parole supervision)	0% (2)			\$0	\$0	\$1,201	-\$1,201
Juvenile intensive probation supervision programs	0% (3)			\$0	\$0	\$1,598	-\$1,598
Juvenile wilderness challenge	0% (9)			\$0	\$0	\$3,085	-\$3,085
Juvenile intensive parole supervision	0% (10)			\$0	\$0	\$6,460	-\$6,460
Scared Straight	+6.8% (10)			-\$8,355	-\$6,253	\$58	-\$14,667
Counseling/psychotherapy for juvenile offenders	-18.9% (6)			\$23,126	\$17,309	n/e	n/e
Juvenile education programs	-17.5% (3)			\$41,181	\$26,153	n/e	n/e
Other family-based therapy programs	-12.2% (12)			\$15,006	\$11,231	n/e	n/e
Team Child	-10.9% (2)			\$5,759	\$4,131	n/e	n/e
Juvenile behavior modification	-8.2% (4)			\$19,271	\$12,238	n/e	n/e
Life skills education programs for juvenile offenders	-2.7% (3)			\$6,441	\$4,091	n/e	n/e
Diversion progs. with services (v. regular juvenile court)	-2.7% (20)			\$1,441	\$1,034	n/e	n/e
Juvenile cognitive-behavioral treatment	-2.5% (8)			\$3,123	\$2,337	n/e	n/e
Court supervision vs. simple release without services	0% (8)			\$0	\$0	n/e	n/e
Diversion programs with services (v. simple release)	0% (7)			\$0	\$0	n/e	n/e
Juvenile intensive probation (as alternative to incarceration)	0% (5)			\$0	\$0	n/e	n/e
Guided Group Interaction	0% (4)			\$0	\$0	n/e	n/e
Prevention Programs (crime reduction effects only)							
Nurse Family Partnership-Mothers	-56.2% (1)			\$11,531	\$8,161	\$5,409	\$14,283
Nurse Family Partnership-Children	-16.4% (1)			\$8,632	\$4,922	\$733	\$12,822
Pre-K education for low income 3 & 4 year olds	-14.2% (8)			\$8,145	\$4,644	\$593	\$12,196
Seattle Social Development Project	-18.6% (1)			\$1,605	\$4,341	n/e	n/e
High school graduation	-10.4% (1)			\$1,738	\$2,851	n/e	n/e
Guiding Good Choices	-9.1% (1)			\$570	\$2,092	n/e	n/e
Parent-Child Interaction Therapy	-3.7% (1)			\$268	\$784	n/e	n/e
Program types in need of additional research & development before we can conclude they do or do not reduce crime outcomes:							
Programs needing more research for people in the adult offender system				Comment			
Case management in the community for drug offenders	0% (13)			Findings are mixed for this broad grouping of programs.			
COSA (Faith-based supervision of sex offenders)	-22.3% (1)			Too few evaluations to date.			
Day fines (compared to standard probation)	0% (1)			Too few evaluations to date.			
Domestic violence courts	0% (2)			Too few evaluations to date.			
Faith-based programs	0% (5)			Too few evaluations to date.			
Intensive supervision of sex offenders in the community	0% (4)			Findings are mixed for this broad grouping of programs.			
Medical treatment of sex offenders	-21.4% (1)			Too few evaluations to date.			
Mixed treatment of sex offenders in the community	0% (2)			Too few evaluations to date.			
Regular parole supervision vs. no parole supervision	0% (1)			Too few evaluations to date.			
Restorative justice programs for lower risk adult offenders	0% (6)			Findings are mixed for this broad grouping of programs.			
Therapeutic community programs for mentally ill offenders	-20.8% (2)			Too few evaluations to date.			
Work release programs (from prison)	-4.3% (4)			Too few recent evaluations.			
Programs needing more research for youth in the juvenile offender system							
Dialectical Behavior Therapy	0% (1)			Too few evaluations to date.			
Increased drug testing (on parole) vs. minimal drug testing	0% (1)			Too few evaluations to date.			
Juvenile curfews	0% (1)			Too few evaluations to date.			
Juvenile day reporting	0% (2)			Too few evaluations to date.			
Juvenile jobs programs	0% (3)			Too few recent evaluations.			
Juvenile therapeutic communities	0% (1)			Too few evaluations to date.			
Mentoring in juvenile justice	0% (1)			Too few evaluations to date.			

The Functional Family Therapy (FFT) program follows a specific training manual and approach. These types of programs are more capable of being reproduced in the field when appropriate quality control is assured. Several of these programs have been listed as “Blueprint” programs by the Center for the Study and Prevention of Violence at the University of Colorado.¹⁹

The FFT program, which has been implemented in Washington, involves an FFT-trained therapist working for about three months with a youth in the juvenile justice system and his or her family. The goal is to increase the likelihood that the youth will stay out of future trouble. We located and meta-analyzed seven rigorous evaluations of this program—one conducted in Washington—and find that the average FFT program with quality control can be expected to reduce a juvenile’s recidivism rates by 15.9 percent. Our analysis indicates that, without the program, a youth has a 70 percent chance of recidivating for another felony or misdemeanor conviction after a 13-year follow-up. If the youth participates in FFT, then we would expect the recidivism rate to drop to 59 percent—a 15.9 percent reduction.

A third example is a prevention program called Nurse Family Partnership (NFP), a program that has also been implemented in Washington. This program provides intensive visitation by nurses to low-income, at-risk women bearing their first child; the nurses continue to visit the home for two years after birth. Thus far, there is evidence that NFP reduces the crime outcomes of the mothers and, many years later, the children born to the mothers. Both of these effects are included in our analysis of the program. Our analysis of the NFP studies indicates that the program has a large effect on the future criminality of the mothers who participate in the program, reducing crime outcomes by 56 percent. NFP also reduces the future crime levels of the youth by 16 percent compared to similar youth who did not participate in the NFP program.

What Are the Benefits and Costs of Each Option?

While our first research question deals with what works, our second question concerns economics. Exhibit 4 also contains our estimates of the benefits and costs of many of the program categories we analyze. Within three broad groupings—programs for adult offenders, programs for juvenile offenders, and prevention programs—we rank many of the options by our assessment of each program’s “bottom line” economics for reducing crime.

Prisons, Police, and Programs

Broadly speaking, there are three types of public policies that focus directly on reducing crime: the level of imprisonment of different types of offenders, the level and type of policing, and a wide array of rehabilitative and preventive programs. There are, of course, many private factors that influence crime rates, but most well-researched public policies can be grouped into one of these three categories.

For this study of “what works” to reduce crime, we analyze two of these three types of public policies: prison and programs. We do not include research on evidence-based policing strategies, since it is beyond the scope of the project directed by the 2005 Washington Legislature. We do recommend that evidence-based policing strategies be included in a subsequent version of this study.

Exhibit 4 in this document lists our findings to date for evidence-based rehabilitative and prevention programs. In this study, we also estimate the effect that prison incarceration rates have on crime rates and criminal justice system costs. These estimates are needed to forecast the long-run effect that different combinations of incarceration rates and effective programs can have on the future need for prison construction, criminal justice system costs, and crime rates.

To gauge the effect prison has on crime rates, we updated our econometric study on how state incarceration rates affect county crime rates in Washington.^(a) We estimated a fixed-effects model with county-level panel data from 1982 to 2004 (N=897, 39 counties for 23 years), controlling for changes in police levels, local jail rates, the economy, age and ethnic demographics, population density, crime reporting rates, and county fixed effects. We found that a 10 percent increase (or decrease) in the incarceration rate leads to a statistically significant 3.3 percent decrease (or increase) in crime rates. The crime-prison relationship is best estimated with a log-log functional form implying diminishing returns as the incarceration rate is increased. Our estimated elasticity is consistent with other well-researched studies.^(b)

(a) Steve Aos. (2003). *The Criminal Justice System in Washington State: Incarceration Rates, Taxpayer Costs, Crime Rates, and Prison Economics*. Olympia: Washington State Institute for Public Policy. Our estimate includes an approximate adjustment to correct for the simultaneity bias encountered in estimates of the effect of incarceration on crime.

(b) William Spelman, (2002). What Recent Studies Do (and Don’t) Tell Us about Imprisonment and Crime, in *Crime and Justice: A Review of Research*, Volume 27, ed. Michael Tonry, Chicago: University of Chicago Press, p. 422.

For programs that have an evidence-based ability to affect crime, we estimate benefits from two perspectives: taxpayers' and crime victims'. For example, if a program is able to achieve statistically significant reductions in recidivism rates, then taxpayers will spend less money on the criminal justice system. Similarly, if a program produces less crime, then there will be fewer crime victims. The estimates shown in columns (2) and (3) of Exhibit 4 display our estimates of victim and taxpayer benefits, respectively. Of course, a program category that does not achieve a statistically significant reduction in crime outcomes will not produce any benefits associated with reduced crime. In Appendix B, we provide technical detail on how we calculate the value of avoided crime to taxpayers and crime victims.

In column (4) we show our cost estimates of many programs. At this time, we have not estimated the costs for every program category listed on Exhibit 4; thus we do not produce full cost-benefit results for all programs in the Exhibit.

Finally, in column (5) of Exhibit 4, we show our "bottom line" estimate of the net gain (or loss). These figures are the net present values of the long-run benefits of crime reduction minus the net up-front costs of the program. This provides our best overall measure each type of program can be expected to achieve per program participant.

An examination of column (5) provides an important finding from our analysis. While there are many adult corrections programs that provide a favorable return to taxpayers, there are some programs for juvenile offenders that produce especially attractive long-run economic returns. This finding, coupled with the fact that 73 percent of adult offenders in prison in Washington have previously been in Washington's juvenile justice system,²⁰ demonstrates the attractiveness of juvenile justice options as a means to affect the long-run need for prison construction in Washington.

To continue the three examples already discussed, we find that the average cognitive-behavioral program costs about \$105 per offender to administer. These programs are typically run in groups of 10 to 15 offenders and involve 40 to 60 hours of therapeutic time. We estimate that the 6.3 percent reduction in recidivism rates generates about \$10,404 in life-cycle benefits (a present-valued sum) associated with the crime reduction. Thus, the net value of the average evidence-based cognitive-behavioral program for adult offenders is \$10,299 per offender.

For the Functional Family Therapy example, we find that the program costs, on average, \$2,325 per

juvenile participant. The costs are higher because it is a one-on-one program between a FFT therapist and the youth and his or her family. The 15.9 percent reduction in recidivism rates that we expect FFT to achieve generates about \$34,146 in life-cycle benefits, measured in terms of the taxpayer and crime victim costs that are avoided because of the reduced long-run level of criminal activity of the youth. Thus, the net present value of this juvenile justice program is expected to be \$31,821 per youth.

For the Nurse Family Partnership program, we find that the crime reduction associated with the mothers produces \$19,692 in benefits while the crime reduction linked to the children produces \$13,554 in benefits. Together, the benefits total \$33,247 per participant in NFP. We estimate the total cost of the NFP program to be \$6,142 per family (2006 dollars) for crime related outcomes. For our current study of crime outcomes, we pro-rated the NFP total program cost per participant (\$9,827) by the ratio of crime benefits to total benefits estimated from our earlier study of prevention programs (in addition to crime outcomes, the NFP program has been shown to reduce child abuse and neglect and increase educational test scores).²¹

As mentioned, we find that some programs show no evidence that they reduce crime outcomes. This does not mean, however, that these programs are not economically viable options.

An example of this type of program is electronic monitoring for adult offenders. As indicated in Exhibit 4, we located nine studies of electronic monitoring and find that the average electronic monitoring program does not have a statistically significant effect on recidivism rates. As future evaluations are completed, this result may change; but, currently, we report no crime reduction benefits in columns (2) and (3). We do expect, however, that the average electronic monitoring program is typically used to offset the costs of more expensive resources to process the sanctions of the current offense. That is, we find that an average electronic monitoring program costs about \$1,236 per offender. The alternative to electronic monitoring, however, is most often increased use of jail time, and we estimate this to cost \$2,107 per offender. The cost shown on column (4) is our estimate of the difference in these up-front costs. The bottom line is reported in column (5) and provides evidence that electronic monitoring can be a cost-beneficial resource. Thus, although there is no current evidence that electronic monitoring reduces recidivism rates, it can be a cost-effective resource when it is used to offset the costs of a more expensive criminal justice system resource such as jail time.

Projections: The Effects of Alternative Evidence-Based Implementation Portfolios

The primary purpose of this study is to estimate whether alternative portfolios of “evidence-based” options can: (a) reduce the future need for prison beds, (b) save money for state and local taxpayers, and (c) contribute to lower crime rates.

To do this, we combine the findings shown in Exhibit 4 with information on the number of people in Washington who could realistically benefit from the programs. We then forecast the effect alternative combinations of these evidence-based options could have on the outcomes of interest. We built a forecasting model for this study to make the projections.²² For this report, we estimate the benefits and costs of three example implementation scenarios:

- ✓ **A Current Level Portfolio**, where we assume that existing evidence-based programs in Washington continue to be funded at current levels in the years ahead. Under this scenario, we assume that current evidence-based programs are not expanded to increase market penetration rates, nor do we assume that any new evidence-based programs are put in place. We estimate that the first year cost of this package of current programs amounts to about \$41 million, or \$83 million for a biennial budget.
- ✓ **A Moderate Implementation Portfolio**, where we assume that existing evidence-based programs are expanded to reach more people than are currently being served. Under this scenario, we assume that each current evidence-based program is expanded to serve 20 percent of the remaining eligible population. We estimate that the first year cost of this package of current programs and their moderate expansion would be about \$63 million, or \$127 million for a biennial budget.

For example, Washington currently funds about 659 juvenile offenders per year to participate in Functional Family Therapy in the state’s juvenile courts. We estimate, however, that 5,358 youths per year in juvenile courts could benefit from FFT. In the moderate portfolio, we assume that funding for FFT would be expanded to include 20 percent of those eligible youth not currently in the program (5,358 - 659 times 20 percent = 940 additional youths per year). This expansion of FFT would cost about \$2.2 million per year. We do similar calculations for each evidence-based option we analyze in the portfolio.

- ✓ **An Aggressive Implementation Portfolio**, where we assume that the current levels of existing programs are significantly expanded to serve a substantially larger number of people who could benefit from the programs. Under this scenario, we assume that current evidence-based programs are expanded to serve 40 percent of the remaining eligible populations. We estimate that the first year cost of this aggressive package of current and expanded programs would be about \$85 million, or \$171 million for a biennial budget.

These three portfolios are intended to be representative of the types of evidence-based investment opportunities available to Washington policymakers in this area. The forecasting tool we built for this project can be used to examine quickly other combinations of evidence-based programs. The menu of available options for these three example portfolios includes the following evidence-based programs.

Programs for Adult Offenders

- Drug treatment in prison and community corrections
- Cognitive-behavioral treatment in prison and community corrections
- Education in prison (basic education or post-secondary)
- Vocational education in prison
- Correctional industries programs in prison
- Sex offender cognitive-behavioral treatment in prison and community corrections
- Employment and job training programs in community corrections
- Adult drug courts
- Electronic monitoring in lieu of jail time

Programs for Juvenile Offenders

- Functional Family Therapy® in juvenile courts and in the state Juvenile Rehabilitation Administration (JRA)
- Aggression Replacement Training® in juvenile courts and in the state JRA
- Multi-systemic Therapy® in juvenile courts
- Multidimensional Treatment Foster Care® in the state JRA
- Interagency coordination programs in juvenile courts
- Family Integrated Transitions® in the state JRA
- Juvenile drug courts
- Restorative justice programs in juvenile courts

Representative Prevention Programs

- Nurse Family Partnership® in community settings
- Pre-K education for low income 3- and 4-year-olds

Estimated Effect of the Alternative Portfolios on the Need for Future Prison Construction. One of the main outcomes of legislative interest for this study concerns the effects that evidence-based programs could have on the future need for prison construction in Washington.

Exhibit 5 shows the current level of prison resources in Washington along with the latest official state forecast of prison beds; this is the same information presented earlier in Exhibit 2. Exhibit 5 also shows the expected effect on the demand for prison beds under the three example portfolios of evidence-based options. The Exhibit provides a visual indication that, if successfully implemented, the moderate-to-aggressive portfolios are capable of avoiding a substantial level of new prison construction.

In Exhibit 6, we present these results in a table highlighting two years in the future: 2020 and 2030. After subtracting the existing supply of prison beds, Washington's current forecast of prison demand from the Caseload Forecast Council implies the need for 4,543 new beds by 2020 and 7,024 new beds by 2030. Since the typical new prison in Washington houses about 2,000 offenders, this means that current forecasts anticipate the need for slightly more than two new prisons by 2020 and a third prison by 2030.

- ✓ With the Current Level Portfolio, we estimate the need for prisons will drop to 3,821 beds and 5,955 beds in the 2020 and 2030, respectively. Note that this current level portfolio is slightly

less than the current Caseload Council Forecast because we estimate that the full impact of some recent correctional programs has not yet been incorporated in the Council's forecast.

- ✓ With the Moderate Implementation Portfolio, we estimate the need for new prison beds will drop further to 1,988 in 2020 and 3,331 in 2030.
- ✓ With the Aggressive Implementation Portfolio, we estimate the need for new prison beds drops to 208 in 2020 and 806 in 2030.

Thus, by successfully implementing a moderate-to-aggressive portfolio, Washington could exert a considerable cumulative impact on the future need for prison construction in Washington.

Estimated Effect of the Alternative Portfolios on Incarceration Rates. Another way to express the results of the alternative scenarios is in terms of incarceration rates rather than prison beds. As noted earlier, incarceration rates are simply the number of people in prison divided by a relevant statewide population. In 1980, the prison incarceration rate in Washington was 2.3 prisoners per 1,000 people in the state between the ages of 18 and 49. By 2006, the rate was 6.1 per thousand, a 165 percent increase. The current Caseload Council Forecast sees the incarceration rate increasing to about 7.5 per thousand by 2020.

Exhibit 6 shows the long-run effect of the three portfolios on the prison incarceration rate in

Exhibit 5
Adult Prison Supply and Demand in Washington: 2008 to 2030,
Current Forecast and the Effect of Alternative Evidence-Based Portfolios

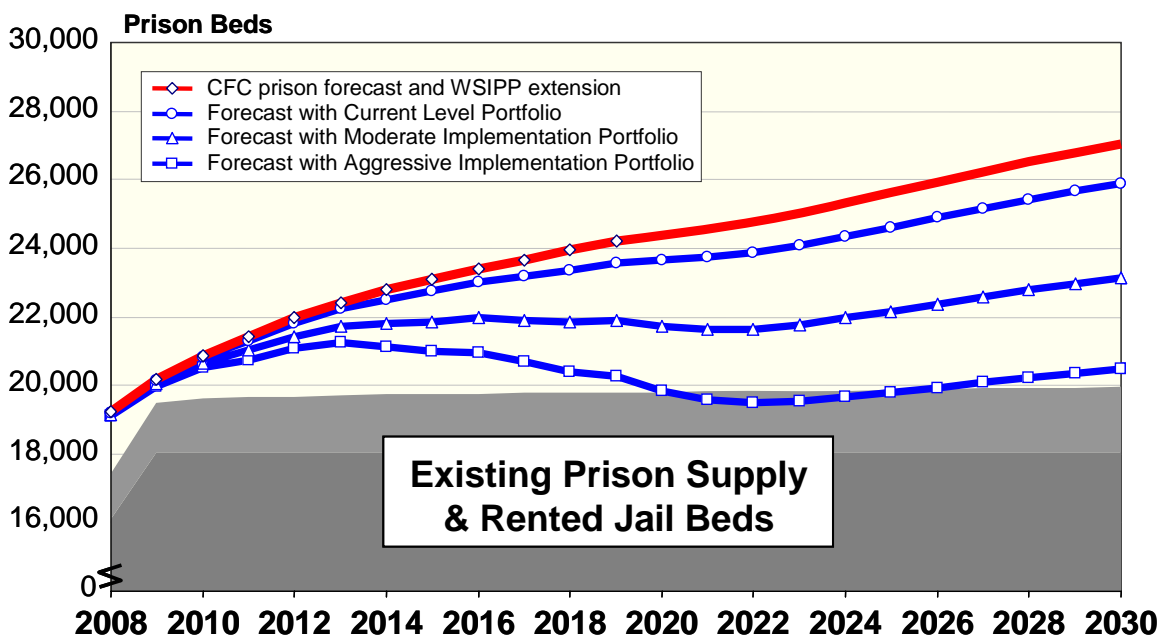


Exhibit 6
Estimated Effects of Three Portfolios of Evidence-Based Options
On Prison Construction, State and Local Criminal Justice Costs, and Crime Rates

All Estimates by the Washington State Institute for Public Policy October, 2006	Current Forecast (see Exhibit 2)	Three Example Implementation Scenarios		
		Current Level Portfolio	Moderate Implementation Portfolio	Aggressive Implementation Portfolio
	(1)	(2)	(3)	(4)
Effects on the Prison Supply-Demand Gap (forecasted shortfall in the number of beds)				
Forecasted bed shortfall in 2020	4,543	3,821	1,988	208
Forecasted bed shortfall in 2030	7,024	5,955	3,331	806
Effects on Prison Incarceration Rate (prisoners per 1,000 18- to 49-year-olds)				
Historic rate: 1980	2.3	2.3	2.3	2.3
Historic rate: 1990	3.1	3.1	3.1	3.1
Historic rate: 2000	5.2	5.2	5.2	5.2
Historic rate: 2006	6.1	6.1	6.1	6.1
Forecasted rate: 2020	7.5	7.3	6.7	6.1
Forecasted rate: 2030	7.7	7.3	6.6	5.8
Key Financial Outcomes for the Three Portfolios				
Benefits Minus Costs to Taxpayers and Victims (millions)		\$3,757	\$5,828	\$7,843
Benefits Minus Costs to Taxpayers (millions)		\$1,096	\$1,741	\$2,367
Return on Investment to Taxpayers		24%	27%	28%
Benefit-to-Cost Ratio to Taxpayers and Victims		\$5.96	\$6.16	\$6.24
Benefit-to-Cost Ratio to Taxpayers		\$2.45	\$2.55	\$2.60
First year cost of portfolio (millions)		\$41	\$63	\$85
First biennial budget cost of portfolio (millions)		\$83	\$127	\$171
Effect on Crime Rates in Washington (felony crimes per 1,000 Washington population)				
Historic Crime Rate: 1980		71	71	71
Historic Crime Rate: 1990		62	62	62
Historic Crime Rate: 2000		51	51	51
Historic Crime Rate: 2005		52	52	52
Forecasted Crime Rate: 2020		48	48	49
Forecasted Crime Rate: 2030		46	47	48

Washington. By 2020, the Aggressive Implementation portfolio would leave Washington with an incarceration rate roughly equal to today's level. None of the cases considered drops the incarceration rate below current levels by 2020. Rather, they work to lower the rates of increases in incarceration rates anticipated in the current Caseload Forecast Council projections.

Estimated Effect of the Alternative Portfolios on State and Local Fiscal Costs. Another outcome of legislative interest for this study concerns state and local government expenditures. That is, the legislature wanted to know if evidence-based options could lower taxpayer costs of the criminal justice system in Washington.

Exhibit 6 displays these results. From the perspective of state and local taxpayers we find that, between 2008 and 2030, taxpayers could save from \$1.9 to \$2.6 billion with the moderate to aggressive

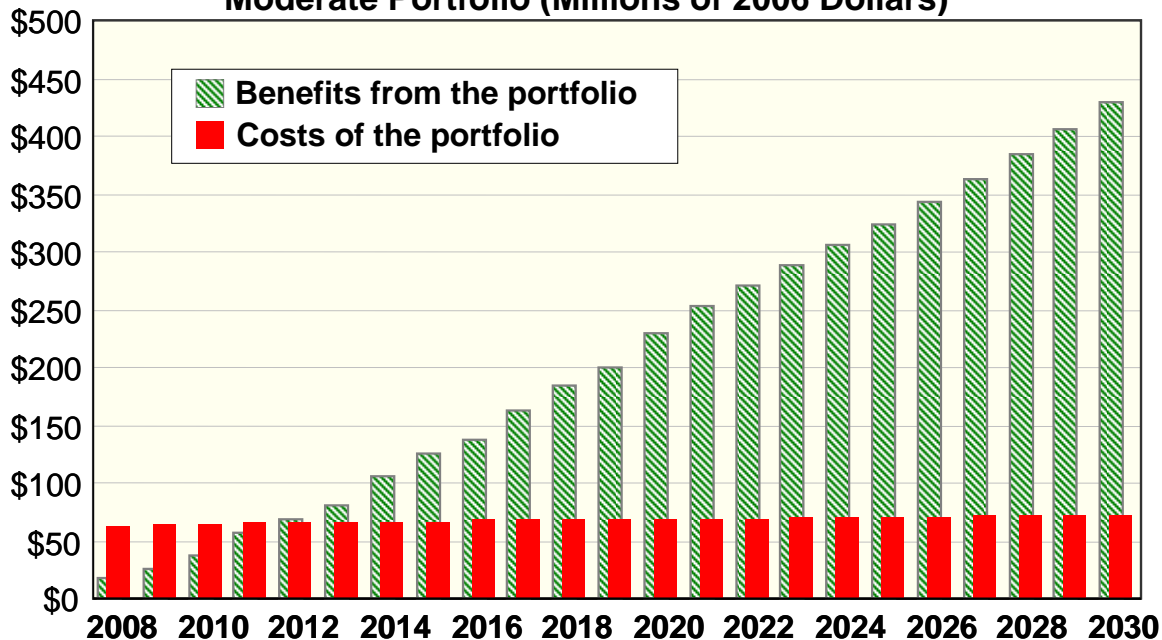
portfolios, respectively. These estimates mean that, after paying the annual costs of the evidence-based options, taxpayers could save over a billion dollars through avoided prison costs and other state and local criminal justice system costs.

Technically, these sums are "net present values" computed by estimating the annual cash flows associated with the increases in spending for the programs and the annual savings from the reduced crime—all discounted back to present value. Exhibit 7 displays the annual cash flows for the moderate implementation portfolio. The annual inflation-adjusted costs of the evidence-based options are shown (about \$63 million in the first year) along with the annual benefits linked to crime reduction. The net present value of these cash flows, discounted at 3 percent per year, is \$1,903 million.

Two other popular ways to express these financial taxpayer sums are as returns on investment and benefit-to-cost ratios. Exhibit 6 shows that the

Exhibit 7

**Annual Taxpayer Costs & Benefits: Forecasted Cash Flows,
Moderate Portfolio (Millions of 2006 Dollars)**



internal rate of return on investment for these portfolios of evidence-based options ranges from 27 to 31 percent. Expressed as a ratio, the portfolios generate from \$2.59 to \$2.75 of taxpayer benefits per dollar of cost.

These financial outcomes can also be expressed in broader terms that include total societal benefits associated with the portfolios. As described, we quantify two types of beneficiaries when crime is reduced: taxpayers who would enjoy spending less money on the criminal justice system; and people who are not victims of crime when less crime is committed. In Exhibit 6, we show the main results from this broader perspective that includes crime victims in addition to taxpayers. The net present values (benefits minus costs) of the three portfolios range from \$3.8 billion to \$7.8 billion and the associated benefit-to-cost ratios range from \$5.96 to \$6.24.

Estimated Effect of the Alternative Portfolios on Crime Rates in Washington. The final outcome shown in Exhibit 6 is the level of crime that can be expected in Washington under the three portfolios. Holding other factors constant, we forecast the net effect that the three portfolios of evidence-based resources can be expected to have on future crime rates in Washington.

It is important to note that prison is included as one of these evidence-based resources (see sidebar on page 10). As noted, under the current forecast from

the Caseload Forecast Council, the rate of incarceration is expected to increase in the years ahead as the effect of Washington's existing sentencing laws adds to the number of people in prison at a rate faster than the growth of the general adult population. Other things being equal, this anticipated increase in the incarceration rate can be expected to reduce further Washington's crime rate.

The three alternative evidence-based portfolios, on the other hand, reduce these future incarceration rates (as indicated in Exhibit 5). Our estimates of the effects of the portfolios on crime rates take both of these factors into account. That is, as the portfolios reduce the need for incarceration, the crime rate can be expected to increase. The effect of the evidence-based resources, however, counters this with reductions in future crime that the resources can be expected to produce. Our forecast of crime rates includes both of these countervailing factors.

The net result is indicated in Exhibit 6. The reported crime rate in Washington in 1980 was 71 serious crimes per 1,000 people in the state. By 2005, the latest year available, the reported crime rate was 52 crimes per 1,000—a 26 percent reduction.

The net effect of each of the three portfolios is to lower the crime rate further. By 2020, the net effects of the current level, moderate, and aggressive portfolios all lower the expected crime rates to about 48 crimes per 1,000 people.

Discussion of Findings and Next Steps

Main Finding. The purpose of this legislatively directed study is to test whether evidence-based public policy options could: (a) lower the anticipated need to build new prisons, (b) reduce state and local fiscal costs of the criminal justice system, and (c) contribute to reduced crime rates.

We find that there are economically attractive evidence-based options in three areas: adult corrections programs, juvenile corrections programs, and prevention. Per dollar of spending, several of the successful programs produce favorable returns on investment. Public policies incorporating these options can yield positive outcomes for Washington.

We find that if Washington can successfully implement a moderate-to-aggressive portfolio of evidence-based options, then a significant level of future prison construction can be avoided, state and local taxpayers can save about two billion dollars, and net crime rates can be lowered slightly.

Cautions and Limitations. These positive findings need to be tempered. Our analysis is based on an extensive and comprehensive review of what works to reduce crime, as well as an economic analysis of the benefits and costs of alternative implementation scenarios. The results indicate that Washington can obtain favorable outcomes if it can substantially and successfully increase its use of evidence-based options.

It is one thing to model these results carefully on a computer, it is quite another to find a way to make them actually happen in the real world. We constructed our estimates cautiously to reflect the difficulty that is often encountered when taking programs to a larger scale. Nonetheless, the moderate-to-aggressive portfolios described here would require Washington's state and local governments to expand significantly current evidence-based programs. Incumbent to such an effort would be the policy review and management supervision necessary to hold the evidence-based programs accountable for the anticipated savings in crime rates and costs.

In particular, to help assure the "quality control" necessary to achieve these savings, the legislature may want to establish an on-going oversight process if it decides to pursue a significant expansion of these evidence-based options. Ensuring competent delivery of programs while maintaining fidelity to the program model appears to be essential. For example, some of the interventions in our portfolio

are standardized treatment protocols that have been shown to reduce crime. We learned from Washington's experience with one of these programs, the Functional Family Therapy juvenile justice program (see sidebar on this page), that when the program was not implemented competently, then it did not reduce crime at all. On the other hand, when it was delivered as designed, the program produced outstanding returns on investment. Thus, safeguarding the state's investment in evidence-based programs requires ongoing efforts to assess program delivery and, when necessary, taking the required steps to make corrective changes.

Maintaining Program Fidelity: Washington's Experience With Functional Family Therapy

In the late 1990s, Functional Family Therapy (FFT) was implemented in the juvenile courts across Washington. In an evaluation five years later, the Institute found that when FFT was delivered by competent therapists, the program reduced recidivism by as much as 30 percent. However, 47 percent of therapists were rated less than competent, and these therapists had no effect on the recidivism rates of their clients. The state has since implemented a quality assurance process to ensure that FFT is delivered only by competent FFT therapists. The lesson is clear: as in every successful enterprise, quality control matters. For more information, see: R. Barnoski. (2002). *Washington State's Implementation of Functional Family Therapy for Juvenile Offenders: Preliminary Findings*, Olympia: Washington State Institute for Public Policy.

Next Research Steps. In completing this report, we were able to make substantial analytical progress in providing Washington with a tool to forecast the long-run impacts of evidence-based resources that reduce crime. There are, however, a number of additional steps that could be taken to enhance these efforts.

1. Sentencing Alternatives. The legislation directing this study required the Institute to analyze "sentencing options that will be developed by Sentencing Guidelines Commission." The Sentencing Guidelines Commission (SGC) has not completed its work on this topic and, when it does, we will incorporate the Commission's work into the analytical framework presented here. We did not include in our analysis any existing sentencing alternatives (for example, expansion of the existing

juvenile and adult sex offender sentencing alternatives) pending completion of the SGC's recommendations.

2. Prevention Programs. Due to time constraints for this project, we were not able to update our previously published work on evidence-based prevention programs.²³ We include a few important and representative prevention programs in this study, but a fuller research investigation would likely yield additional investments in early childhood programs that could produce cost-beneficial outcomes for Washington taxpayers.

In particular, since we have previously found that child abuse can have long-term adverse consequences for criminality, then prevention and intervention programs that limit child abuse have the potential to make long-term contributions to reductions in crime, prison construction, and criminal justice costs.²⁴ Additionally, we have found that long-term crime rates can be lowered by successful evidence-based early childhood and K-12 educational programs that foster academic achievement and increased high school graduation rates.²⁵ We also did not include some Washington prevention programs such as the Becca truancy laws, since we did not have time to conduct a full cost analysis of this effective statute.²⁶ For this report, we did include two representative evidence-based prevention options that achieve these outcomes: the Nurse Family Partnership program and pre-K education for low income 3- and 4-year-olds. A more comprehensive inquiry, however, into all prevention programs is an important next analytical step.

3. Evaluations of Washington's Programs. In this study, we relied on the outcomes of 560 rigorous evaluations of adult and juvenile corrections programs and prevention programs. Unfortunately, only a few of these evaluations were of programs in Washington State. We recommend that the legislature initiate an effort to evaluate the outcomes of key programs in Washington. If the evaluations are conducted with rigorous and independent research designs, then policymakers in Washington will be able to ascertain whether taxpayers are receiving positive rates of return on their dollars.

4. Extensions of the Institute's Research. In order to complete this project on budget, we had to defer several analytical steps that subsequent research could address. In addition to updating and extending our earlier study of prevention, these additional steps include performing a formal risk analysis to test the degree to which the model's findings are sensitive to key data inputs.²⁷

Additional research could also be undertaken to test how the effects of individual evidence-based programs may diminish as they are implemented at increasingly higher penetration rates; we only approximate this in the current report. It would also be possible to enhance the model by developing "phase-in" procedures to estimate better estimate the first few years of portfolio implementation.

Finally, there is a need to monitor the latest evaluation research findings on effective ways to reduce crime and achieve improvements in other outcomes of policy interest. In this report, we included studies we were able to locate and analyze in time for this publication. As new research becomes available, our results should be updated. We suggest the legislature establish an on-going independent review process so that information on the latest developments in evidence-based programs can be made readily available for policymakers in Washington.

Endnotes

¹ ESSB 6094, Section 708, Chapter 488, Laws of 2005.

² S. Aos, R. Lieb, J. Mayfield, M. Miller, A. Pennucci. (2004). *Benefits and costs of prevention and early intervention programs for youth*. Olympia: Washington State Institute for Public Policy, Document No. 04-07-3901.

³ The national data are from the United States Bureau of Justice Statistics (<http://www.ojp.usdoj.gov/bjs/abstract/p04.htm>). Because of limitations in how the federal government reports national prison rates, the national series includes prisoners in federal prisons as well as inmates in state prisons. This does not materially affect the comparisons presented here.

⁴ Other age groups could be used as denominators in calculating incarceration rates; the choice does not materially affect the results. We used the 18- to 49-year-old group because that age cohort encompasses the most crime-prone ages for adult offenders.

⁵ None of the figures in this report includes local jail populations. Jails are run by counties in Washington. Jail incarceration rates have also increased over time. For more information on local jail rates, see: S. Aos. (2003). *The criminal justice system in Washington State: Incarceration rates, taxpayer costs, crime rates, and prison economics*. Olympia: Washington State Institute for Public Policy, Document No. 03-01-1202.

⁶ Information about the Washington State Caseload Forecast Council is available at the Council's website: <http://www.cfc.wa.gov/>.

⁷ Source: personal communication with the Washington State Department of Corrections, September 2006.

⁸ Source: *Department of Corrections Statistical Brochure*. (August 2006). Olympia: Washington State Department of Corrections, see: <http://www.doc.wa.gov/BudgetAndResearch/secstats.htm/>

⁹ The population information is available at the Washington State Office of Financial Management website: <http://www.ofm.wa.gov/>.

¹⁰ The amortization of the capital costs assumes a 25-year bond term and a nominal 5.5 percent interest rate.

¹¹ Crime rates are calculated from Uniform Crime Reports data published by the Washington Association of Sheriffs and Police Chiefs. The Institute adjusted these data to account for jurisdictions that fail to report crime data; these adjustments are minor.

¹² The dollars are used to fund the four basic components of the criminal justice system in Washington: 1) police; 2) criminal courts, prosecutors, and defenders; 3) local government adult and juvenile sanctions including jail, juvenile detention, and local community supervision; and 4) state government adult and juvenile sanctions (Department of Corrections and Juvenile Rehabilitation Administration). For this analysis, we summed all taxpayer spending for these resources and, to make the dollar amounts meaningful over time, we removed the general rate of inflation. We also divided expenditures by the number of households in the state to make the numbers even more comparable over time. The data source for local government data is the Washington State Auditor's Local Government Finance Reporting System, available at: <http://www.sao.wa.gov/applications/lgrfs/>. State financial data were made available to the Institute by legislative fiscal staff.

¹³ See: Aos. (2003). *The criminal justice system in Washington State*, Document No. 03-01-1202. Our estimate includes an approximate adjustment to correct for the simultaneity bias encountered in estimates of the effect of incarceration on crime. See also, W. Spelman. (2002). What recent studies do (and don't) tell us about imprisonment and crime, in *Crime and Justice: A Review of Research*, Vol. 27, ed. Michael Tonry. Chicago: University of Chicago Press, p. 422, the citations to studies.

¹⁴ An international effort aimed at organizing systematic reviews is the Campbell Collaborative—a non-profit organization that supports systematic reviews in the social, behavioral, and educational arenas. See: <http://www.campbellcollaboration.org>.

¹⁵ We follow the meta-analytic methods described in: M.W. Lipsey and D. Wilson. (2001). *Practical meta-analysis*. Thousand Oaks: Sage Publications.

¹⁶ For average victimization cost estimates by type of crime, we use national estimates as published by the National Institute of Justice. T.R. Miller, M.A. Cohen, and B. Wiersema. (1996). *Victim costs and consequences: A new look, research report*, Washington DC: National Institute of Justice.

¹⁷ See: Aos, et al. (2004). *Benefits and costs of prevention and early intervention programs for youth*, Document No. 04-07-3901.

¹⁸ Additional information on the programs shown in Exhibit 4 can be obtained from the Institute.

¹⁹ See the Center for the Study and Prevention of Violence at the University of Colorado at Boulder website: <http://www.colorado.edu/cspv/blueprints/>.

²⁰ In Fiscal Year 2006, there were 8,765 admissions to prison for a new sentence (excluding admissions to prison for a violation). Of the 8,765 admissions, 4,033 were age 30 or under at the date of their admission to DOC. We used this age group because data were not available in the juvenile court and JRA data systems prior to this time. This information was obtained using the Institute's criminal records database. Of the 4,033 offenders, 2,944 (73 percent) had prior involvement in a Washington juvenile court.

²¹ See: Aos, et al. (2004). *Benefits and costs of prevention and early intervention programs for youth*, Document No. 04-07-3901.

²² The model is developed in Microsoft Excel with Visual Basic for Applications®.

²³ See: Aos, et al. (2004). *Benefits and costs of prevention and early intervention programs for youth*, Document No. 04-07-3901.

²⁴ *Ibid.*

²⁵ *Ibid.* and L. Lochner and E. Moretti. (2004). The effect of education on crime: Evidence from prison inmates, arrests, and self-reports. *American Economic Review* 94(1): 155-189.

²⁶ S. Aos. (2002). *Keeping kids in school: The impact of the truancy provisions in Washington's 1995 "Becca Bill,"* Olympia: Washington State Institute for Public Policy, Document No. 02-10-2201.

²⁷ For a discussion of our approach to sensitivity analysis using Monte Carlo simulation, see: S. Aos, J. Mayfield, M. Miller, and W. Yen. (2006). *Evidence-based treatment of alcohol, drug, and mental health disorders: Potential benefits, costs, and fiscal impacts for Washington State*. Olympia: Washington State Institute for Public Policy, Document No. 06-06-3901.